

REMARKS

Examiner Alexander is thanked for the courtesy of an interview, which was held on December 19, 2003. The above amendments are submitted in response to the Office Action dated September 26, 2003 and in accordance with the claim amendments discussed during the interview.

Claims 25-42 and 44 were examined in the September 26th Office Action. Claims 25-35 stand rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,025,200 to Kaish et al. ("Kaish"). Additionally, claims 36-43 and 44 are rejected under 35 U.S.C. 103(a) as being obvious in view of Kaish.

Claims 25-42 and 44 stand rejected under 35 U.S.C. 102(b) as being anticipated by Clarke (US 5,139,334) or Clarke et al. (US 5,225,679).

In this Office Action the Examiner has restated the rejection pursuant to Kaish from the previous Office Action and has added the rejection in view of Clarke or Clarke et al. With respect to all of these references, the Examiner argues that they disclose apparatus having the same structure as the claimed invention and that no weight is given to the intended use.

Applicants respectfully disagree. Independent claims 25 and 45 specifically claim an apparatus and system, each of which detects concentration ratios and uses those ratios to identify a liquid. The claim limitations include a data processor which includes a look-up table storing a plurality of known concentration ratios, each concentration ratio corresponding to the signal from a specific combination of the plurality of markers at predetermined relative concentrations. In addition, a ratio comparison element capable of comparing the measured concentration ratio with known concentration ratios is required. The ratio comparison element permits identification of a marked liquid by comparing the measured concentration ratio with the concentration ratios stored in the look up table.

New claims 45-49 are further distinguished because they include a plurality of markers. These claims require a *system* for identifying a marked liquid having the above limitations plus a plurality of markers miscible in a liquid in a predetermined pattern of relative concentration.

The apparatus of the Kaish and the Clarke references do not have these limitations and cannot perform the claimed functionality. In particular, Clarke et al. disclose an apparatus for monitoring hydrocarbon properties by measuring the presence and amount of fuel components. Based on the quantity (e.g., volume) of each fuel component, and information about each fuel components found in a look-up table (e.g., octane rating), the properties of the total fuel solution are predicted. Nowhere does Clarke et al disclose a data processor with a look-up table containing concentration ratios or a pattern comparison element capable of comparing concentration ratios.

The Office Action suggests that prior art disclosures of detectors and processors should be enough to anticipate the claimed invention. Applicants disagree because the claims require more than these elements. As discussed above, the invention requires a receiver that can determine concentration ratios, a look-up table having concentration ratios, and a pattern comparison element. In addition, the device must be able to distinguish liquids having unique patterns of markers. Simply because a processor might be programmed to perform the function of identifying marked liquids does not mean Clarke et al can anticipate the claimed invention because it has a programmable processor. The prior art must teach or disclose every limitation of the claims, a requirement which cannot be met by the Clarke et al. reference. Clarke et al. fails to teach or disclose the stored concentration ratios, the ratio comparison element or the ability to identify marked liquids.

Clark (US 5,139,334) similarly fails to disclose the claimed invention. Clark is directed to methods and apparatus for measuring properties of hydrocarbons, in particular octane ratings. As discussed above, nowhere does Clarke disclose a data processor with a look-up table containing concentration ratios and a pattern comparison element capable of comparing concentration ratios with known concentration ratios of identified liquids. With respect to the

new claims, Clarke also fails to disclose a liquid comprising a plurality of markers present in a predetermined concentration pattern of relative concentrations.

The Kaish references also fails to teach or disclose the claimed invention. As discussed in the previous response, prior art identification devices mark objects by assigning each composition an identity. If the presence of the composition is detected then the object is identified, conversely, if the presence of the composition is not detected then the object is not identified. For example, an object could be marked with a mix of composition A and composition B. For the prior art detection device to identify the object, the detector would have to detect the presence of composition A and B. The only two possibilities are that either A and B are present and the detector recognizes the object, or A and B are not detected and the device does not recognize the object.

The drawback of such a system is that in some cases there are a very limited number of available markers (e.g. only A and B). The present invention overcomes this prior art limitation by providing an apparatus which can identify numerous marked liquids using a minimal number of markers.

The present invention provides a detector to detect markers having a predetermined *concentration ratio*, instead of just the presence or absence of a marker. The claimed apparatus includes a detector for detecting the plurality of markers and for generating signals indicative of relative concentration of each of the markers. The signal defines a measured concentration *ratio*. The claims further require, a look-up table which stores a plurality of known concentration ratios, each concentration ratio corresponding to the signal from a specific combination of the plurality of markers at the predefined relative concentrations. The prior art fails to teach or disclose these limitations.

The Kaish reference is directed to tagging and detecting of various objects such as illicit drugs, crops, chemical compositions, currency, people, vehicles and currency. The objects are “tagged” with a volatile compound such a Perfluorocarbon Tracer (“PFT”). Subsequently, the presence or proximity of the object is detected by detecting the *presence* of the PFT. Nowhere

does Kaish disclose the use of a concentration ratio, or detectors capable of detecting a concentration ratio, or a look-up table containing concentration ratios, or a pattern comparison element capable of comparing ratios. Although Kaish discloses a library, as noted by the Examiner, the library does not contain known concentration ratios corresponding to the signal from a specific combination of the plurality of markers at a predetermined relative concentration. In fact the library of Kaish is only disclosed to contain, "known environmental data, as well as empirical data about the taggants of interest." At best, Kaish and other such prior art references detect the presence of a mixture of taggants, and as a result they completely fail to disclose the claimed structures for identifying liquids marked with concentration ratios.

In summary, claim 25 of the present invention contains patentably distinct structural limitations which are neither anticipated nor rendered obvious by Kaish. Independent claim 45 also contains structural limitations not found in the prior art, plus the requirement of a marked liquid. In addition, each of the dependent claims is patentable at least because it depends on allowable independent base claim 25 or 45. Therefore, reconsideration of the rejection in view of Applicants' arguments is respectfully requested.

CONCLUSION

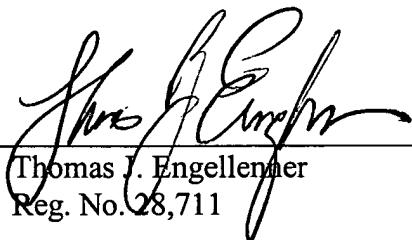
The Examiner is urged to telephone the undersigned Attorney for Applicants in the event that there are any remaining issues.

Respectfully submitted,

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Date: 24 Dec 2003

By


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